EPA COMMENTS ON NORTH DAKOTA DEPARTMENT OF HEALTH'S PROPOSED DETERMINATION REGARDING THE ADEQUACY OF THE SIP TO PROTECT PSD INCREMENTS FOR SULFUR DIOXIDE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

May 24, 2002

Francis J. Schwindt and Douglas Bahr, Hearing Officers
Public Hearing on PSD Increment
North Dakota Department of Health
P.O. Box 5520
Bismark, North Dakota 58506-5520

Dear Messrs. Schwindt and Bahr:

This letter is to provide EPA's comments for the North Dakota Health Department's public hearing on the adequacy of the State Implementation Plan (SIP) to prevent significant deterioration of air quality in North Dakota. In the notice of hearing, the Department specifically solicited comments on the State's technical assessment and proposed determination that there are no violations of applicable Prevention of Significant Deterioration (PSD) increments for sulfur dioxide (SO_2) and, therefore, the SIP is adequate to prevent significant deterioration. The letter also responds to the State's request for EPA's legal analysis as it relates to the factual issues, and also addresses several of the items discussed in the State's legal analyses. EPA has reviewed the information, analysis, and issues related to the proposed determination and offers the comments below.

While this letter responds to North Dakota's request for comments, it is important to note that EPA is committed to keeping the lines of communication open on this matter and that discussions have been scheduled as soon as next week in our efforts to find resolution. For the past 30 years EPA and the North Dakota Department of Health have built a strong partnership based upon communications and understanding and we remain committed to continuing that partnership. We hope that these comments will help to clarify the basis for our position, which in turn will narrow our differences.

Background

In October of 1999, the State of North Dakota submitted to EPA for comment, a comprehensive modeling analysis of SO_2 increment consumption, using the approved Calpuff model, for several Class I areas that it completed in conjunction with a permit application by the Minnkota Power Cooperative to increase production, and consequently SO_2 emissions, at its Milton R. Young coal-fired power plant near Beulah, North Dakota.[1] The State conducted modeling for compliance with the Class I increments at all three units of Theodore Roosevelt National Park and Lostwood Wilderness Area, as well as the Medicine Lakes Wilderness Area in

[1] North Dakota Department of Health, Calpuff Class I Area Analysis for Milton R. Young Generating Station (May 24, 1999) (on file with EPA Region VIII, Denver, Colorado).

Montana and the Ft. Peck Indian Reservation Class I area. The results showed numerous violations of the SO_2 increment, both the 24-hour and 3-hour averaging times, in all four Class I areas, and the Minnkota Power Cooperative's proposed increase in emissions would contribute significantly to those violations.

In a February 1, 2000, letter EPA provided its review of North Dakota's modeling analysis.[2] Specifically, we stated that the Calpuff modeling methodology was technically sound and consistent with EPA's Guideline on Air Quality Models and the recommendations of the Interagency Workgroup on Air Quality Modeling[3] (IWAQM) for evaluating Class I area impacts.[4] In addition, we advised North Dakota that it should not issue the permit to the Minnkota Power Cooperative to increase production without requiring emission reductions to ensure that there would be no violations of the PSD increments. We also advised the State to correct the existing SO_2 increment violations.

In an April 14, 2000, letter North Dakota notified the Minnkota Power Cooperative that it would not proceed to issue a construction permit for the Milton R. Young station based on the facility's application to increase production.[5] North Dakota's decision was based in large part on the facility's impact on the existing Class I SO_2 increment violations, as well as on projected violations of the SO_2 National Ambient Air Quality Standards (NAAQS) and Class II increments in other areas. The State then performed a subsequent Class I increment analysis under various scenarios and provided the results to EPA in an email dated April 7, 2000 and a memo dated April 19, 2000.[6] The scenario of most interest to EPA was the analysis of the original results, excluding the increment-consuming emissions of the Minnkota Power Cooperative's Milton R. Young station. The results continued to indicate numerous violations of the Class I increment in all four Class I areas due to emissions from other large stationary sources in the area.

In January of 2001, we met with the North Dakota Department of Health to discuss the

---

[2] Letter from Richard R. Long, Director, Air and Radiation Program, EPA Region VIII, to Jeffrey L. Burgess, Director, Division of Environmental Engineering, State of North Dakota Department of Health (February 1, 2000) (on file with EPA Region VIII, Denver, Colorado).

[3] The Workgroup includes modeling experts from the U.S. Forest Service, the U.S. Fish and Wildlife Service, the National Park Service, and the U.S. Environmental Protection Agency.

[4] United States Environmental Protection Agency, Office of Air Quality Planning and Standards, Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report and Recommendations for Modeling Long Range Transport Impacts, EPA-454/R-98-019 (December, 1998) (*available at* http://www.epa.gov/scram001/7thconf/calpuff/phase2.pdf) [hereinafter IWAQM Report].

[5] Letter from Jeffrey L. Burgess, Director, Division of Air Quality, State of North Dakota Department of Health, to John T. Graves, Environmental Manager, Minnkota Power Cooperative, Inc. (April 14, 2000) (on file with EPA Region VIII, Denver, Colorado).

[6] E-mail with attachments from Steve Weber, State of North Dakota Department of Health, to Kevin Golden and Vicki Stamper, Air and Radiation Program, EPA Region VIII (April 7, 2000) (on file with EPA Region VIII, Denver, Colorado). Memorandum from Steve Weber, State of North Dakota Department of Health, to Kevin Golden and Vicki Stamper, Air and Radiation Program, EPA Region VIII (April 19, 2000) (on file with EPA Region VIII, Denver, Colorado).

potential need for a SIP revision to correct the PSD increment violations. The State indicated the need to update and refine its modeling analysis before moving forward with examining potential measures to adopt into the SIP. Consequently, in a March 13, 2001 letter to EPA, the North Dakota Department of Health committed to update and refine its modeling analysis and to adopt revisions to its SIP as necessary to address any increment violations shown by the revised modeling analysis.[7] Specifically, the North Dakota Department of Health agreed that it would:

- Develop an air quality modeling protocol by April 1, 2001.
- Complete its modeling analysis by January 2, 2002 (or within nine months from the time EPA completed its review of the modeling protocol).
- Provide EPA with a summary of its modeling analysis by February 1, 2002.
- Complete a SIP revision to resolve the increment issue (if the modeling analysis shows that the increment is exceeded) by August 1, 2003.

EPA published an information notice to inform the public of the commitments made by the State.[8]

In a letter dated March 28, 2001, we advised the State that, in light of its commitment letter, we would not initiate formal action to call for a SIP revision to address these violations of the PSD increments for SO_2.[9] We acknowledged the State's desire to refine the modeling analysis to better determine the appropriate control strategies to address the violations, and we offered to work with the State in its efforts. We advised the State that if it were to not meet its commitments, or if the State and EPA were unable to agree on an acceptable modeling protocol or on acceptable control measures, we would consider initiating a formal SIP call.

On April 2, 2001 we received the modeling protocol from the State.[10] The protocol was not acceptable to EPA because the State did not demonstrate that the protocol would be at least as protective of air quality as a protocol developed pursuant to longstanding EPA regulation and guidance for determining increment consumption. Furthermore, the State's protocol would underestimate the amount of air quality degradation that is occurring in the Class I airsheds. We had numerous discussions with the State in April and May to try and reach an agreement on the protocol. Some of the conversations included staff and managers from the EPA Headquarters office. EPA and the Department could not reach agreement, and we sent our comment letter to

---

[7] Letter from Francis J. Schwindt, Chief, Environmental Health Section, State of North Dakota Department of Health, to Richard R. Long, Director, Air and Radiation Program, EPA Region VIII (March 13, 2001) (on file with EPA Region VIII, Denver, Colorado).

[8] 66 Fed. Reg. 29127 (May 29, 2001).

[9] Letter from Richard R. Long, Director, Air and Radiation Program, EPA Region VIII, to Francis J. Schwindt, Chief, Environmental Health Section, State of North Dakota Department of Health (March 28, 2001) (on file with EPA Region VIII, Denver, Colorado).

[10] Letter from Francis J. Schwindt, Chief, Environmental Health Section, State of North Dakota Department of Health, to Richard R. Long, Director, Air and Radiation Program, EPA Region VIII (with enclosure) (April 2, 2001) (on file with EPA Region VIII, Denver, Colorado).

the State on June 25, 2001[11]. The letter expressed EPA's concern that the modeling would underestimate increment consumption because the State was proposing to model using an insufficient period of meteorology data and an inadequate characterization of source emissions. The State subsequently approached John Seitz, Director of the Office of Air Quality Planning and Standards, for advice on the matter. Mr. Seitz responded in a December 12, 2001, letter to the Department, in which he concurred with our June 25, 2001, letter.[12] During this time, the State also shared with us a draft letter it intended to send to the affected sources giving them the opportunity to provide their position concerning the baseline emission rates.[13] The State subsequently performed the modeling outlined in the protocol.[14] Despite the numerous assumptions that EPA believes would result in an underestimate of PSD increment consumption, the study still showed violations of the PSD increment in Theodore Roosevelt National Park and the Lostwood Wilderness Area.

When we could not reach agreement with the State on the modeling approach, EPA performed its own modeling. The draft report discussing the results of this modeling analysis was released on March 5, 2002, and the comment period closed on April 29, 2002. Although EPA's modeling analysis followed EPA regulations and procedures for most of the parameters, the EPA analysis contained several assumptions that to some extent supported the State's position. As a consequence, we received several comments during EPA's public comment period critical of those assumptions. We have received criticism from some commenters for being too lax (*e.g.,* for using 90th percentile emissions rather than maximum emission rates as required by the modeling guidelines, not using IWAQM regulatory default settings in the model. The maximum Class I increment concentrations would have increased by about 50%, and the number of violations nearly doubled, if the standard IWAQM regulatory defaults had been used in the modeling). Despite these less conservative assumptions, EPA's draft analysis still showed numerous violations in the four Class I areas, and the results were very similar to what the State showed in their original 1999 Calpuff analysis.[15]

On April 5, 2002 the State's draft modeling analysis and related documents became

---

[11] Letter with enclosure from Richard R. Long, Director, Air and Radiation Program, EPA Region VIII, to Francis J. Schwindt, Chief, Environmental Health Section, State of North Dakota Department of Health (June 25, 2001) (on file with EPA Region VIII, Denver, Colorado).

[12] Letter from John S. Seitz, Director, Office of Air Quality Planning and Standards, EPA, to Francis J. Schwindt, Chief, Environmental Health Section, State of North Dakota Department of Health (December 12, 2001) (on file with EPA Region VIII, Denver, Colorado) [hereinafter Seitz letter].

[13] Draft letter from Francis J. Schwindt, Chief, Environmental Health Section, State of North Dakota Department of Health (June 4, 2001) (on file with EPA Region VIII, Denver, Colorado).

[14] North Dakota Department of Health, Calpuff Analysis of Current PSD Class 1 Increment Consumption in North Dakota and Eastern Montana using CEM Hourly Emission Rates Coupled with Concurrent Meteorology (March, 2002) (on file with EPA Region VIII, Denver, Colorado).

[15] United States Environmental Protection Agency, Region VIII Air and Radiation Program, Denver, Colorado, Draft Dispersion Modeling Analysis of PSD Class I Increment Consumption in North Dakota and Eastern Montana (January 2002) (on file with EPA Region VIII, Denver, Colorado).

available on the Department's web site.[16] In a letter dated April 29, 2002, Robert Roberts, Region VIII Regional Administrator, explained to Governor Hoeven that our office will continue to work with the Governor and the State staff to achieve our mutual goals.[17] The April letter also committed that EPA Region VIII would work with the State to support the Governor's Vision 21 project and to help meet the Governor's goals for clean energy projects for the future; and also asked that the Governor's staff carefully consider EPA's comments and concerns in preserving the intent of the PSD program to protect the exceptional air quality of North Dakota.

It appears that the State's proposed modeling effort needs revision since the State's alternative methodologies have not been demonstrated to be more appropriate than the methodologies outlined in the Federal PSD program. As a result, it appears that this proposed modeling effort cannot be used to support the proposed conclusion in the hearing notice that the State Implementation Plan (or SIP) is adequate to prevent significant deterioration of air quality for affected Class I areas.

EPA's Response to the State's Legal Issues

EPA's legal analysis differs from the State on many of the issues presented in the State's legal analyses placed in the State's docket for this proceeding and the legal issues articulated at the State's public hearing.[18] Although the scope of these written comments focuses primarily on EPA's concerns with the State's draft modeling analysis, EPA thinks it is important to respond to several of the issues presented in the State's analyses at this time. As appropriate, EPA may respond to the rest of the State's legal analysis at some point in the future, as well as supplement these comments and analyses provided herein.

---

[16] North Dakota Department of Health, Environmental Health Section, Notice of Hearing Before the North Dakota Department of Health - Proposed Determination of the Adequacy of the North Dakota State Implementation Plan to Prevent Significant Deterioration (March 28, 2002); Prevention of Significant Deterioration Implementation Analysis and Sulfur Dioxide Increment Consumption Assessment Summary (April, 2002); Summary of Legal Procedure and Summary of Legal Issues relating to Administration of the Prevention of Significant Deterioration (PSD) Provisions of North Dakota's State Implementation Plan (SIP) (Undated), Role of Certifications of No Adverse Impact by Federal Land Managers in Setting PSD Increment Thresholds (MAALs) (Undated); Draft North Dakota Department of Health, Division of Air Quality, Calpuff Analysis of Current PSD Class I Increment Consumption in North Dakota and Eastern Montana Using Actual Annual Average SO_2 Emission Rates (April, 2002); Draft Prevention of Significant Deterioration - Sulfur Dioxide - Baseline Emission Rates (April, 2002) (*available at* http://www.health.state.nd.us/psd/).

[17] Letter from Robert E. Roberts, Regional Administrator, EPA Region VIII, to the Honorable John Hoeven, Governor of North Dakota (April 29, 2002) (on file with EPA Region VIII, Denver, Colorado).

[18] Draft Memorandum from Lyle Witham, Assistant Attorney General, State of North Dakota, to Francis Schwindt, Wayne Stenehjem and Robert Harms, State of North Dakota, "Legal Issues Relating to PSD Baseline and Increment Consumption" (January 31, 2002) (on file with the State of North Dakota) [hereinafter Witham Draft Memorandum]; Supplementary Written Comments to Draft Memorandum - "Legal Issues Relating to PSD Baseline and Increment Consumption," Prepared by Lyle Witham, Assistant Attorney General, State of North Dakota (May 6, 2002) (on file with the State of North Dakota) [hereinafter Supplementary Draft Witham Memorandum].

EPA's PSD regulations require that the State Implementation Plan (SIP) provide for procedures which specify that "All applications of air quality modeling involved in this subpart shall be based on the applicable models, data bases, and other requirements specific in Appendix W of this part (Guideline on Air Quality Models)."[19] North Dakota's SIP regulations contain an equivalent provision.[20] The Guideline on Air Quality Models was incorporated by reference in the PSD regulations promulgated for the prevention of significant deterioration and the Guideline is a regulation for purposes of the PSD regulatory requirements.

EPA believes that consistency in the selection *and application of models* and data bases should be sought. EPA is concerned with the approach presented by the State since it does not follow the PSD and modeling rules and requirements discussed in these comments. The need for consistency has also been expressed by States and EPA Regional Offices, by many industries and trade associations, and also by the deliberations of Congress.[21] "Consistency ensures that air quality control agencies and the general public have a common basis for estimating pollutant concentrations, assessing control strategies and specifying emission limits."[22] In the early years of the PSD program, many states expressed the desire that federal regulations be promulgated in a manner which would permit all States to prevent significant deterioration without placing any individual states in unfairly advantageous or disadvantageous positions for attracting new industries.[23] EPA found it desirable to insure that industry was provided with no incentive to "shop" for areas in which efforts to prevent significant deterioration are deliberately relaxed.[24] The need for consistency has been affirmed by the courts.[25] While consistency is key, the Modeling Guidelines provide EPA with the authority to approve another technique if it can be demonstrated *to be more appropriate* than those recommended in the Modeling Guidelines.[26] As discussed in these comments, it does not appear that North Dakota has been able to demonstrate that the State's techniques are more appropriate than those followed by hundreds of previous PSD permit actions and other states' increment analyses.[27]

The State appears to interpret a phrase in *Alabama Power v. Costle* differently than EPA.[28] In that case, the court found that

---

[19] 40 C.F.R. § 51.166(l).
[20] N.D. Admin. Code § 33-15-15-01(4)(f). *See also,* 40 C.F.R. § 52.1820(14).
[21] 40 C.F.R. pt. 51 Appendix W § 1.0(d).
[22] 40 C.F.R. pt. 51 Appendix W § 1.0(d).
[23] 38 Fed. Reg. 18986, 18988 (July 16, 1973).
[24] *Id.*
[25] *See, Western States Petroleum Association v. EPA*, 87 F.3d 280 (9th Cir. 1996).
[26] 40 C.F.R. pt. 51 Appendix W § 1.0(e).
[27] *See, e.g.,* Colorado Department of Public Health and Environment, Air Pollution Control Division, Technical Services Program, Air Quality Modeling Report - Periodic Assessment of Nitrogen Dioxide PSD Increment Consumption in Southwest Colorado - Phase I (October 29, 1999) (on file with EPA Region VIII, Denver, Colorado).
[28] Supplementary Draft Witham Memorandum, *supra* note 18, at 1.

> EPA has authority under the statute to prevent or correct a violation of the increments, but the agency is without authority to dictate to the States *their policy for management of the consumption of allowable increments.*[29]

EPA agrees that *management* of the consumption of allowable increments is a state decision, however, it appears we disagree with how the State defines "management." The State appears to be interpreting management to cover *all aspects* of carrying out PSD increment standards described in the Clean Air Act and federal rules. This is an overly broad interpretation of the State's management responsibilities. For example, section 163 of the Clean Air Act (Act) sets increments standards and ceilings and under this provision the State's plan is required to contain measures to assure the increments are not exceeded.[30] The State must meet this national standard. If the standard can not be met, the State is required to adopt such measures as may be necessary to prevent the increments from being exceeded. The options selected by the State to meet the standards, is the appropriate place for the State to implement its policy for the *management* of the increment. Furthermore, the Act and the rules outline EPA's oversight role if a SIP is found inadequate. Under the PSD rules, if the State or EPA determines that a plan is substantially inadequate to prevent significant deterioration or that an applicable increment is being violated, the plan shall be revised to correct the inadequacy or the violation.[31] Whenever EPA finds that a State Implementation Plan is substantially inadequate to comply with the requirements of the Act, the Act mandates that EPA require a State to revise the plan as necessary to correct such inadequacies.[32] Therefore, Congress established an oversight role for EPA when SIPs are found inadequate and a state fails correct the SIP.

I. THE STATE BELIEVES MONITORING DATA SUPPORTS THEIR POSITION THAT THE CLASS I AREAS ARE PROTECTED AND THE STATE IS IN COMPLIANCE WITH THE PSD INCREMENT REQUIREMENTS (Scope of Hearing #1)

The State collected SO_2 monitoring data at Theodore Roosevelt National Park-South Unit intermittently between 1980 and 1999, and at Theodore Roosevelt National Park-North Unit between 1980 and the present time. Some limited monitoring data were also collected before 1980, but these monitors were not located in the vicinity of Theodore Roosevelt National Park. The post-1980 monitoring data for North Dakota have been collected and processed and are available at the EPA AIRData website at http://www.epa.gov/air/data/index.html. In the hearing notice the State indicates its belief that the monitoring data support the position that PSD Class I areas are being protected in North Dakota.

---

[29] *Alabama Power Company v. Costle*, 636 F.2d 323, 361 (D.C. Cir. 1980) (emphasis added).
[30] 42 U.S.C. § 7473.
[31] 40 C.F.R. § 51.166(a)(3).
[32] 42 U.S.C. § 7410(k)(5).

EPA generally considers monitoring data unreliable for determining how much of the increment has been used up.[33] Several factors are worthy of note here. First, the year-to-year variability of air quality data limits the usefulness of certain data collected.[34] For example, by looking at monitoring data alone one cannot distinguish concentration peaks caused by emission increases from those related to meteorological variations. Second, monitoring data will include not only "increment consuming" source emissions (as defined by regulation), but also emissions from non-increment consuming sources and background level pollution.[35] Third, it is not practical to have monitors in all locations where elevated concentrations of pollutants may threaten PSD increment.[36] Fourth, models have the advantage of being able to predict pollutant and PSD increment concentrations at locations where siting of monitors may not be possible. Fifth, due to the lack of an adequate number of monitors in the early years of the PSD program (during the time period the baseline was established), if the program were to rely on monitoring it would make calculating baseline (and other aspects of the PSD program) virtually unworkable.[37] Finally, monitoring data collected at a single location is not representative of concentrations that may occur at other nearby Class I receptors because SO_2 concentrations can vary greatly over small distances. For these reasons, EPA believes that the assessment of available increment will normally be accomplished through an accounting procedure whereby modeling results will be used to keep track of the available increment.[38]

EPA has reviewed the historical monitoring data, and we believe that data from Theodore Roosevelt National Park-North Unit and to a lessor extent the South Unit monitor are influenced by emissions related to local oil and gas production. Some relatively large oil and gas emission sources are located approximately ten miles east of the North Unit, while a number of smaller emission sources are located within ten miles of the northern boundary of Theodore Roosevelt National Park-South Unit. The relationship between local oil and gas sources and ambient SO_2 concentrations can be seen by comparing Figures 1, 2, and 3.[39] From the Figures it can be seen that oil production for the counties closest to the Class 1 areas reached a peak in 1982 and declined in the years thereafter. This is the same pattern shown by the ambient air monitoring data shown in Figure 1. For this data, it appears that oil and gas production and SO_2 emissions/concentrations, are positively correlated. The State believes that the monitoring data support their position that the Class I increments are being protected in the four Class I areas. Unfortunately, there are no SO_2 air quality monitoring data available near Theodore Roosevelt National Park prior to 1980. However, the monitored data show a large decrease in SO_2 concentrations at Theodore Roosevelt National Park-North Unit in the two years preceding the peak concentrations measured in 1982. If that trend had continued back to the 1977 time period,

---

[33] 43 Fed. Reg. 26380, 26399 (June 19, 1978); 40 C.F.R. pt. 51, Appendix W § 1.0(b).
[34] 43 Fed. Reg. 26380, 26399 (June 19, 1978).
[35] *See id.*
[36] 39 Fed. Reg. 42510, 42510 (Dec. 5, 1974).
[37] *See id.*
[38] 40 C.F.R. § 51.166(l); N.D. Admin. Code § 33-15-15-01(4)(f); 45 Fed. Reg. 52676, 52678 (Aug. 7, 1980); 39 Fed. Reg. 31000, 31003 (Aug. 27, 1974).
[39] The Figures and Tables referenced in these comments appear at the end.

coincident with the reduced oil production, concentrations in the 1976 to 1977 baseline period would have been lower than those monitored in 1980, or even in current years. This is suggestive of possible increment consumption. In sum, without a far more comprehensive historical monitoring record going back to 1977, the monitoring data do not provide a reliable indication of the degree of increment consumption in the Class I areas at issue here.

Also of interest are the monitoring data from Dunn Center which is also shown on Figure 1. The Dunn Center monitor is located closer to the major power plant emissions sources than the Theodore Roosevelt National Park-North Unit monitor and so is more likely to reflect impacts from these sources. However, the Dunn Center monitor is located at a greater distance from the oil and gas sources near Theodore Roosevelt National Park and should be less impacted by these emissions. The Dunn Center monitor was actually one of the sites used by the State to test model performance. These data indicate that SO_2 concentrations may have actually increased somewhat since monitoring was initiated in 1979. While not located adjacent to any of the Class 1 areas these data show how strongly monitoring data are influenced by local sources. This is a major reason why dispersion modeling is the only reliable method available to determine PSD increment consumption.

II. THE STATE IS NOT COUNTING INCREMENT CONSUMING EMISSIONS FROM THE SOURCES THAT RECEIVED DEPARTMENT OF INTERIOR (DOI) VARIANCES.

In their Class I increment analysis, the State is *not* counting emissions from sources that received variances from the Federal Land Manager (FLM) in the past. There are two sources which received variances from the FLM that are operating today. Those facilities are the Little Knife Gas Plant near Killdeer, ND, and the Dakota Gasification Company near Beulah, ND. These variances certified that at the time these the proposed sources received PSD permits, the proposed sources would not adversely affect the air quality related values of Theodore Roosevelt National Park and the Lostwood Wilderness Area, only (*i.e.*, there were no variances granted for the two Class I areas in Montana). We believe the State should include emissions from *all* sources in the current increment analysis.

The Clean Air Act is very clear that increments are to be protected: "[E]ach applicable implementation plan shall contain measures assuring that maximum allowable increase over baseline concentration of, and maximum allowable concentrations of, such pollutants *shall not be exceeded*."[40] One of the mechanisms for protecting increment is the PSD program, authorized by section 165 of the Act, and the prohibition in that section against construction of a new major

[40] Section 163(a) of the Act, 42 U.S.C. § 7473(a) (emphasis added).

source or major modification that will cause the increment to be violated.[41] The variance provision of section 165(d)(2)(C)(iii) of the Act (42 U.S.C. § 7475(d)(2)(c)(iii)) allows for an exemption from the prohibition against construction, in the case of a facility that is shown to violate Class I increments but which the Federal Land Manager determines will not have an adverse impact on the air quality related values of the affected Class I area.[42]

The effect of the variance provision is limited. The provision extends only to the new construction (source or modification) under consideration, allowing that construction to go forward despite a modeled Class I increment violation. Nothing in the statute suggests that such a source does not contribute to increases in concentrations of pollutants. Moreover, the variance provision does not affect the general statutory requirement that each implementation plan must assure protection of the increment. Nor does the statute or regulations suggest that the variance "wipes the slate clean" with respect to any existing increment violation to which the new construction causes or contributes. In short, the variance does not change the general statutory protections for Class I areas, and the State continues to have an obligation under the Act to protect the increment, by whatever means it may choose.

As the *Alabama Power* Court ruled,

> The regulations provide that once it is determined that a state implementation plan is 'substantially inadequate to prevent significant deterioration or that an applicable increment is being violated,' then the SIP must 'be revised to correct the inadequacy or the violation.' [Citation to what is now 40 C.F.R. § 51.166(a)(3).] We rule that *EPA has authority under the statute to prevent or correct a violation of the increments*, but the agency is without authority to dictate to the States their policy for management of the consumption of allowable increments.

Alabama Power Co. v. Costle, 636 F.2d 323, 361 (D.C.Cir. 1979)(emphasis added). The policy for protecting increment must necessarily include restricting pollution from existing sources to correct an increment violation even when a variance, or waiver, has been granted. As the court clarified:

> The waiver has vitality and recognition in that facilities granted special consideration under these provisions are, in effect, treated as facilities operating in compliance with the provisions of the Act. But the *totality of facilities in compliance, as a group*, may be subject to measures necessary to cope with a condition of pollutants exceeding the PSD maximum.

---

[41] Section 165(a)(3) of the Act, 42 U.S.C. § 7475(a)(3).
[42] *See also,* 40 C.F.R. § 51.166(p)(4); N.D. Admin. Code § 33-15-15-01(4)(j)(4).

636 F.2d at 363 (emphasis added). Thus the Act and EPA's regulations provide that the State must revise the SIP when the increment is violated, whether or not a variance has been issued to any source in any particular permitting action. As the Alabama Court made clear, the variance *only* allows such a source to be built. Any increment violation caused by the construction of such a source, however, must be corrected. The State can correct the increment violation by obtaining increment reductions from other increment consuming sources or by expanding the available increment through reductions at baseline sources.

Most recently, John Seitz, Director of EPA's Office of Air Quality Planning and Standards, wrote to the State on December 12, 2001 regarding this issue.[43] As explained in that letter, the FLM's job, under the Clean Air Act, is to protect Class I air quality related values, while it is the job of EPA and the States to protect the increments and the NAAQS. Under the Clean Air Act and our regulations, a permit applicant must demonstrate that the emissions from the proposed source will not cause or contribute to pollutant concentrations in excess of any applicable increment. In the case of a Class I increment violation, a source may be granted a variance under certain conditions. First, the source must demonstrate to the FLM, and the FLM certify to the State, that the source will not adversely impact any Class I air quality related values. Second, the State must revise its SIP to correct increment violations.

In our February 1, 2000 letter to the State, we explained our position on this issue.[44] Our interpretation is that the Class I increment still applies at the two Class I areas in North Dakota for all increment-consuming emissions that impact these Class I areas. As discussed above, we believe that the Class I variance provisions of the Clean Air Act and the North Dakota Air Pollution Control Rules allow the State to issue a PSD permit to a particular source despite a modeled increment violation, but that the State is still required to correct the Class I increment violation through a revision to the SIP. This does not necessarily mean that the PSD source which received the Class I variance has to reduce emissions to correct the increment violation. The State could correct the increment violation by obtaining emission reductions from other increment-consuming sources or by expanding the available increment through reductions at baseline sources. Thus, although the FLM granted variances for these facilities, the State should revise the SIP to correct the increment violations.

III. THE STATE USES AN "ANNUAL" EMISSION AVERAGE TO DEMONSTRATE COMPLIANCE WITH THE "24-HOUR" INCREMENT STANDARD, WHICH FAILS TO PROTECT THE 24-HOUR AVERAGE INCREMENT (Scope of

---

[43] Seitz Letter, *supra* note 12.

[44] Letter from Richard R. Long, Director, Air and Radiation Program, EPA Region VIII, to Jeff Burgess, Director, Division of Environmental Engineering, State of North Dakota Department of Health (February 1, 2000) (on file at EPA Region VIII, Denver, Colorado).

Hearing #3)

The State is using annual average SO_2 emissions for all major and minor stationary sources to calculate 3-hour, 24-hour, and annual average increment consumption. The State's approach only assures that the annual concentration of pollution has not exceeded the increments. This approach is consistent with how EPA checks for the annual increment standard. However, the State's approach is inconsistent with how EPA checks for the 3 and 24-hour increment standards and the fails to protect the statutory 3 and 24 hour increments. Averaging the concentrations over longer time periods eliminates short-term concentration peaks, which the 3 and 24-hour average increments are meant to protect. It appears that the State's approach significantly underestimates increment consumption, especially for the short-time period averages, which are usually the first, and most often, violated. It appears the State believes that because a portion of their SIP-approved definition of actual emissions states that actual emissions as of a particular date equals the average rate, in tons per year, that they should base their increment analysis on an annual average. In this approach, emissions would be calculated by dividing the average hourly emission rate for the year by the average hours of operation. Although the State's definition of actual emissions is modeled after EPA's, given other applicable rules, EPA comes to a different conclusion.

EPA's PSD rules, incorporated by reference into North Dakota's PSD rules, require that

> [S]equential modeling must demonstrate that the allowable increments are not exceeded temporally and spatially, i.e, for all receptors *for each time period* throughout the year(s) (*time period means the appropriate PSD averaging time, e.g., 3-hour, 24-hour, etc.*).[45]

This means that averaging times for emission rates used in PSD modeling must reflect the

---

[45] 40 C.F.R. pt. 51 Appendix W § 11.2.3.3 (b)(emphasis added). *See also,* 40 C.F.R. pt. 51 Appendix W § 11.2.3.3 (a), N.D. Admin. Code § 33-15-15-01(4)(f)(1), 38 Fed. Reg. 18986, 18990 (July 16, 1973), 43 Fed. Reg. 26380, 26394 (June 19, 1978). *See* United States Environmental Protection Agency, Office of Air Quality Planning and Standards, Draft New Source Review Workshop Manual, at C.69 - C.70 (October, 1990) (*available at* http://www.epa.gov/rgytgrnj/programs/artd/air/nsr/nsrmemos/1990wman.pdf) [hereinafter Workshop Manual]. *See e.g.*, Memorandum from John S. Seitz, Director, Stationary Source Compliance Division, Office of Air Quality Planning and Standards, to Air Management Division Directors, EPA Regional Offices, "Clarification of New Source Review Policy on Averaging Times for Production Limitations," (April 8, 1987) (*available at* http://www.epa.gov/rgytgrnj/programs/artd/air/nsr/nsrmemos/avetimes.pdf); Memorandum from Thomas W. Devine, Director, Air and Hazardous Materials Division, Environmental Protection Agency Region IV, to State and Local Air Directors, "Policy Determinations Regarding PSD Questions" (July 31, 1981) (*available at* http://www.epa.gov/rgytgrnj/programs/artd/air/nsr/nsrmemos/r4sum.pdf); United States Environmental Protection Agency SO_2 Guideline Document - Appendices, Office of Air Quality Planning and Standards, EPA-452/R-94-008, at 6-14 (February 1994); Memorandum from Gerald A. Emison, Director, Office of Air Quality Planning and Standards, to David Kee, Director, Air Management Division, Region V (November 24, 1986) (*available at* http://www.epa.gov/rgytgrnj/programs/artd/air/nsr/nsrmemos/shrtterm.pdf).

averaging time of the PSD increments in order to ensure protection of both the short term and long term increments. When developing the PSD program, EPA selected the increment averaging times to be compatible with the existing new source review standards for these pollutants. The methodology of using averaging times in PSD modeling that are consistent with the averaging time of the PSD increment (e.g., a modeled 3-hour average to show compliance with the 3-hour increment standard), is consistent with EPA's requirement that enforceable emissions limits for contributing sources must be established on a short term basis to protect both the short term NAAQS and the short term PSD increments. Many industries emit at higher levels during certain times of the year to meet short term demands for their products. In instances where industries emit at higher levels during certain times of the year, EPA has included the short term criteria to ensure that seasonal and intermittent operation of sources which have significant short-term emissions will be subject to review.[46] This is particularly true for the electric power industry where emissions can vary hourly or daily depending upon the demand for power which is related to factors such as weather conditions or workday schedules. Because of these higher than average emission periods, an emission rate calculated over a full year is normally much less than the peak short term (3-hour or 24-hour average) emission rate for a given source.

Use of annual average emission rates in the increment modeling will underestimate increment consuming emissions and therefore will not ensure protection of the 3 and 24-hour maximum allowable increases in concentrations of SO_2. For example, the State's approach would not consider a summer heat wave situation in which local power plants are operating at or near peak load, coincident with winds blowing toward Class I areas. Annual average emissions would be appropriate for modeling the *annual* PSD increment, however, both EPA's January 2002 analysis and the State's 1999 analysis showed that the annual increment is not threatened at this time. In our modeling analysis, the 90th percentile of measured 24-hour average emissions were used to estimate the maximum, or near maximum, emissions for the major increment consuming sources. In EPA's 90th percentile approach, 24-hour average emissions were approximately 50 percent higher than the annual average emission rate divided by 365. Thus, the State's approach appears to not be protective of the 3 and 24-hour average Class I increments. Furthermore, section 163 of the Clean Air Act, (42 U.S.C. § 7473), refers to an annual arithmetic mean but a 24-hour maximum - not a 24-hour mean as suggested by the State.

Furthermore, the State's definition of "actual emissions," modeled after EPA's, includes the phrase "in general."[47] This means that the definition applies in some, but not all circumstances. The definition of actual emissions should not be applied in isolation, but rather it should be applied in conjunction with the rest of the PSD regulatory requirements that are in place to protect *all* the PSD averaging times. The definition of actual emissions also requires that emissions be calculated "during the selected time period," reflecting distinct averaging rates to

---

[46] 43 Fed. Reg. 26380, 26394 (June 19, 1978).
[47] N.D. Admin. Code § 33-15-15-01(1)(a)(1), 40 C.F.R. 51.166(b)(21) (emphasis added).

reflect the applicable standard.[48] Finally, the use of an average rate in tons per year makes little sense in ensuring that concentrations of pollutants do not increase above the maximum allowable amount for the 3 and 24-hour periods. Short-term increments are there to protect against short-term fluctuations in emissions.

IV. THE STATE'S PSD MODELING APPROACH APPEARS TO BE TEMPORALLY INCONSISTENT, THE STATE COMPARES ONE DAY FROM THE BASELINE EMISSIONS WITH 365 DAYS OF CURRENT YEAR EMISSIONS. (Scope of Hearing #4)

The provisions of the PSD program were enacted by Congress in the 1977 Clean Air Act. To prevent significant deterioration of air quality, Congress set up the principle of only allowing a certain amount of increase in the ambient air concentration over the existing baseline concentration. These allowable increases are termed the maximum allowable increases over baseline concentrations in section 163 of the Act, 42 U.S.C. § 7473, otherwise known as the PSD increments.

The PSD increments for SO_2 are specified in section 163(b) of the Act, 42 U.S.C. § 7473(b). For Class I areas, those increments are:

Annual arithmetic mean	2 ug/m^3
Twenty-four hour average	5 ug/m^3
Three hour average	25 ug/m^3.

For any averaging period other than annual average, section 163(a) of the Act allows the increment to be exceeded during one such period per year (as such, the concentration compared to the increment is known as the "high second high"). Otherwise, section 163 of the Act provides that the increments are not to be exceeded and that the State Implementation Plan (SIP) must contain measures assuring that the increments will not be exceeded.

The discussion in this section concerning the methods for determining PSD increment is focused on the 24-hour Class I increment of 5 ug/m^3. The State's 1999 modeling and EPA's January 2002 modeling study both showed numerous violations of the 3 and 24-hour PSD increment standards. The number and severity of violations was greater for the 24-hour increment standard. Any control measures necessary to correct the 24-hour violations should be more than sufficient to address the 3-hour increment. Thus, the focus of this discussion is centered on the 24-hour average increment.

---

[48] *Id.*

As discussed previously, EPA's PSD regulations and the State's regulations require the use of 40 C.F.R. Part 51, Appendix W, EPA's Guideline on Air Quality Models, for all applications of air quality modeling involving PSD.[49] EPA's Guideline on Air Quality Models requires that for PSD modeling, "sequential modeling must demonstrate that allowable increments are not exceeded *temporally* and spatially, i.e., for all receptors *for each time period* throughout the year(s)."[50] This means that to determine compliance with the PSD increment, one should determine whether the net change in increment consuming emissions since the baseline date has resulted in pollutant concentrations exceeding the PSD increment at any specific time (temporal) and location (spatial) in the current year. The amount of PSD increment that has been consumed in a PSD area is determined from the emissions increases and decreases which have occurred from sources since the applicable baseline date. Increment consumption calculations must reflect only the ambient pollutant concentration change attributable to increment-affecting emissions.[51] Specific times are used to ensure temporal representativeness which is primarily a function of the day-to-day variations in weather conditions.[52] In determining whether the 24-hour SO_2 increment has been exceeded, one should compare the modeled concentrations resulting from the net change in increment consuming emissions to the level of the PSD 24-hour average SO_2 increment on every day in the meteorological record that is modeled. In addition, one is required to use at least five years of meteorological data, as the State has done in the modeling analysis.[53] Under EPA modeling guidelines it is assumed that a continuous five year period of meteorological data would allow characterization of worst case conditions that can occur in either the baseline period or in the current year.[54] The dispersion model (in this case Calpuff) calculates daily concentrations at each Class I receptor over the minimum five year period. The model then processes the data to determine the high second-high 24-hour average concentration at each receptor for each year of data. This value is then compared to the relevant increment. In this case, the 24-hour average, the increment is 5 ug/m^3 of SO_2.

An illustration of EPA's increment modeling methodology is shown in Figure 4. In the example there were eight exceedances of the 24-hour increment for SO_2. This method is consistent with the manner in which both modeled and monitored total SO_2 concentrations are reviewed to determine compliance with the NAAQS. This issue of whether maximum changes in air quality impact must be determined on both a spatially and temporally consistent basis has been raised in the past. EPA's response to these questions has always been that the maximum amount of PSD increment consumed must be determined by modeling pollutant concentrations

---

[49] 40 C.F.R. § 51.166(l)(1), N.D. Admin. Code § 33-15-15-01(4)(f).
[50] 40 C.F.R. Part 51, Appendix W, § 11.2.3.3(b) (emphasis added).
[51] *See also*, Workshop Manual, *supra* note 45, at C.10, C.62 - C.63.
[52] 40 C.F.R. pt. 51, Appendix W § 9.3(a).
[53] 40 C.F.R. pt. 51, Appendix W § 9.3.1.2(a).
[54] 40 C.F.R. pt. 51, Appendix W § 9.3.1.2.

sequentially for each time period.[55] The State's approach to determining compliance with the increment inappropriately inflates the baseline concentration. Under the approach proposed by the State, the State first estimates the emissions of sources in the baseline year and then use this emissions data in the Calpuff model to determine the second-high concentration of SO_2 at each receptor. The State then adds 5 ug/m^3 (the level of the Class I increment) to this value to establish a "maximum allowable ambient level." This approach allows the State to pick one unrepresentative data point (the second-highest value, one day in each year modeled)[56] to represent the baseline concentration for the entire year. The State has not explained the rational for selecting this data point. Current year emissions are then modeled with the same meteorology data. The second-high prediction for the current year is then compared to the previously determined maximum allowable ambient level. Compliance with the increment is assumed if the second-high prediction in the current year is lower than the maximum allowable ambient level. This process is repeated for each of the five years of meteorology data modeled in the State's analysis. See Table 1 for a comparison of the EPA and State of North Dakota approaches.

The State's draft approach disregards the significant variability in concentrations of pollutants over time due to changes in weather conditions. Thus, using this approach the State would not account for the possibility that impacts greater than 5 ug/m^3 may have occurred on days when the baseline concentration is less than the second-high value. The approach is spatially, but not temporally, consistent, and does not provide a true measure of air quality degradation. Compared to the traditional approach, this would establish 24-hour PSD increment levels of less than 5 ug/m^3 on one day per year (the day with highest baseline concentration), and increment levels greater than 5 ug/m^3 on the 363 days per year with lower baseline concentrations. The State "inappropriately pairs data" since they use only one day of baseline data, instead of the 365 days of data traditionally used, and compares that to each day of current year data. The effect of the State's proposed increment methodology compared to the traditional approach in modeling results for Theodore Roosevelt National Park-South Unit is shown in Figure 5. From

---

[55] *See, e.g.*, Memorandum from John R. O'Connor, Acting Director, EPA Office of Air Quality Planning and Standards, to Thomas W. Devine, Director Air and Waste Management Division, EPA Region IV, PSD Increment Consumption Calculations (January 20, 1984) (*available at* http://www.epa.gov/rgytgrnj/programs/artd/air/nsr/nsrmemos/clculatn.pdf); Memorandum from Sheldon Meyers, Director, Office of Air Quality Planning and Standards, to the Air Directors in the EPA Regional Offices, Emissions Trading Policy - - Technical Clarifications (February 17, 1983) *(available at* http://www.epa.gov/rgytgrnj/programs/artd/air/nsr/nsrmemos/emtradp.pdf). Memorandum from Alexandra B. Smith, Director, Air and Waste Management Division, EPA Region X, to Sheldon Meyers, Director, Office of Air Quality Planning and Standards, Determination of Air Quality Degradation (May 3, 1983) (*available at* http://www.epa.gov/rgytgrnj/programs/artd/air/nsr/nsrmemos/cnsumptn.pdf). United States Environmental Protection Agency SO_2 Guideline Document - Appendices, Office of Air Quality Planning and Standards, EPA-452/R-94-008, at 6-14 (February 1994) (available at http://www.epa.gov/ncepihom/Catalog/EPA452R94008.html).

[56] The State selected Julian Day 343, or December 9, 1990 to establish their proposed approach that uses a MAAL at Theodore Roosevelt National Park-South Unit. A different MAAL was established at Theodore Roosevelt National Park-North Unit for each year the State modeled.

Figure 5 it can be seen that on most days the State's proposal would allow Class I degradation above the Clean Air Act standard of 5 ug/m^3 on 363 days. The State's approach does not provide for protection of the increment and is inconsistent with Act. If the State is unable to demonstrate that the State's methodology is more appropriate than the Modeling Guidelines, the State must revise its increment modeling to reflect the Modeling Guideline methodology.

EPA is also concerned about the interrelationship between receptor averaging (discussed in section V) and the variable increment approach and how it may affect computed concentrations. In reviewing the data from the previous EPA January 2002 and State 1999 Calpuff studies, there was a significant concentration gradient across both the Theodore Roosevelt National Park-North Unit and Theodore Roosevelt National Park-South Unit receptors, with highest concentrations along the eastern boundaries of these areas. Had receptor averaging not been used at these receptors, the baseline concentrations and the State's calculated PSD increment level would have varied significantly from receptor to receptor. This would lead to spatial and temporal variations in the results, and it appears that violations of the 24-hour average increment would have been predicted at several receptor sites.

Another concern we have with the proposed variable increment approach is that it relies on having detailed stack parameters and emissions information on sources during the 1977 base year period to determine the PSD baseline concentration. As we have outlined in Section VI, there is insufficient historical information on many of the sources in the State's inventory to reliably determine baseline concentrations. This is particularly evident for sources such as oil and gas facilities which operate sporadically, and given their close proximity to the Class I areas may significantly affect baseline concentrations. The reliability of emissions data from the 1970s is less of an issue in the traditional approach for tracking increment because the PSD increment level is not dependent on modeled baseline concentrations. The traditional approach only requires an analysis of the net change in emissions between the baseline period and the present. Estimates of the net change in emissions between base year and current year are typically more reliable than total emissions estimates that rely on a comprehensive inventory of every source in the data sparse baseline period.

V. THE STATE'S AVERAGED RESULTS APPROACH, AVERAGING THE 49 RECEPTORS INTO SIX VALUES, REDUCES THE MAXIMUM PREDICTED CONCENTRATIONS AT EACH CLASS I AREA AND APPEARS TO BE INCONSISTENT WITH EPA'S MODELING GUIDELINES. (Scope of Hearing #1)

We have concerns with the State's use of receptor averaging. The State indicates that receptor averaging was performed to derive uniform predictions over each Class I area. In reviewing the modeling files it appears that the 49 receptors that had been used in the State's 1999 Calpuff modeling analysis (and also used in EPA's January 2002 Draft Modeling Study)

have been consolidated in the most recent State analysis through averaging to now include a total of only six receptors. It appears that the State averaged the results from the receptors in each Class I area to get an average concentration of pollutants for each area. The State's approach uses only one "averaged" receptor for each of the six Class I areas. The original 49 receptors in the State's 1999 Calpuff modeling analysis and EPA's January 2002 Modeling Study were deployed along the boundaries of the four Class I areas and were spaced at approximately 5 km intervals. Theodore Roosevelt National Park is separated into three separate geographic areas (North Unit, South Unit, and Elkhorn Ranch). The State has represented each unit of Theodore Roosevelt National Park by a single receptor. The State represents Lostwood Wilderness, Ft. Peck Indian Reservation, and Medicine Lake Wilderness Class I areas each as one receptor. The six federal Class I areas cover more than 86,000 acres.[57] The State indicates that averaging provides more uniform predictions over the Class 1 areas, but does not explain the utility of uniform predictions in this situation.

The proposed averaging of concentrations across individual receptors would effectively reduce maximum predicted concentrations at each Class I area, because SO_2 concentrations are not uniformly distributed. The proposal is inconsistent with EPA's Guideline on Air Quality Modeling, which states that "receptor sites for refined modeling should be utilized in sufficient detail to estimate the highest concentrations and possible violations of a NAAQS or PSD increment."[58] It is also problematic from a technical standpoint. For example, if a concentration at a given receptor exceeded the PSD increment all one would need to do to eliminate the exceedance would be to simply add a new receptor at a lower concentration location and average the results. In addition, receptor averaging loses the spatial details required by the Modeling Guidelines.[59] For these reasons, it is inappropriate for the State's final increment modeling to utilize this receptor averaging approach, unless the State can demonstrate that it is more appropriate.

VI. EPA IS CONCERNED THAT THE STATE'S BASELINE EMISSION ESTIMATES INAPPROPRIATELY COUNT INCREMENT CONSUMING EMISSIONS IN THE BASELINE. (Scope of Hearing #5)

EPA is concerned that the baseline emissions estimates prepared by the State overstate the level of baseline emissions. In other words, under the State's approach, increment consuming emissions are counted in the baseline. It appears that the State has misinterpreted EPA's PSD rules and the Modeling Guidelines on preparing PSD baseline emission inventories. The State's baseline emissions calculations include SO_2 emissions emitted after the minor source baseline date

---

[57] 40 C.F.R. § § 81.417, 81.423.
[58] 40 C.F.R. pt. 51 Appendix W § 8.2.2.(a), N.D. Admin. Code § 33-15-15-01(4)(f).
[59] 40 C.F.R. pt. 51 Appendix W § 11.2.3.3(b).

and EPA believes these emission estimates need to be recalculated.

To determine baseline concentration, EPA's regulations, require the use of actual emissions.

> *Baseline concentration* means that ambient concentration level which exists in the baseline area at the time of the applicable minor source baseline date. A baseline concentration is determined for each pollutant for which a minor source baseline date is established and shall include:
> (a) The *actual emissions* representative of sources in existence on the applicable minor source baseline date, except as provided in paragraph (b)(13)(ii) of this section.[60]

The rules provide that actual emissions are to be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored or combusted during the selected time period.[61] As discussed below, in several instances the State has estimated baseline emissions based on methodology that is not representative of actual emissions. EPA believes these emission estimates need to be corrected.

The PSD regulations also require that baseline concentration be determined by establishing the ambient concentration level which exists in the baseline area at the time of the applicable minor source baseline date.[62] North Dakota's minor source baseline date was triggered on December 19, 1977.[63] The time period used to estimate baseline emissions is further elaborated on in the definition of "actual emissions."[64] The definition of actual emissions requires that actual emissions as of a particular date shall equal the average rate at which the unit actually emitted during a two-year period which precedes the particular date and which is representative of normal source operations.[65] In EPA's judgment, two years represents a reasonable period for assessing actual source operations.[66] The rule allows the reviewing authority to use a different time period upon a determination that a different time period is more representative of normal source operation during that two-year period immediately preceding the minor source baseline date. "If a source can demonstrate that its operation after the baseline date is more representative of normal source operation than its operation *preceding the baseline date*, the definition of actual emissions allows the reviewing authority to use the more representative period to calculate the source's

---

[60] 40 C.F.R. § 51.166(13) (emphasis added), N.D. Admin. Code § 33-15-15-01(1)(d).
[61] 40 C.F.R. § 51.166(21), N.D. Admin. Code § 33-15-15-01(1)(a).
[62] 40 C.F.R. § 51.166(13), N.D. Admin. Code § 33-15-15-01(1)(d).
[63] 40 C.F.R. § 51.166(b)(14)(ii).
[64] 40 C.F.R. § 51.166(21), N.D. Admin. Code § 33-15-15-01(1)(a).
[65] *Id.*
[66] 45 Fed. Reg. 52676, 52718 (Aug. 7, 1980).

actual emissions contribution to the baseline concentration."[67] EPA has indicated that this provision is to apply to catastrophic occurrences such as strikes, retooling, major industrial accidents and other catastrophic occurrences.[68]

The definition of baseline concentration also states that actual emissions increases and decreases at any stationary source occurring after the minor source baseline date will not be included in the baseline concentration. Rather, actual emissions increases and decreases after the minor source baseline date will affect the applicable maximum allowable increases.[69] Therefore, it is inappropriate for the State's final increment modeling analysis to include increases after the minor source baseline date.

An important requirement is that if an alternative two year period is selected to represent normal source operation it should represent normal operation *for the baseline period, not normal operation for the life of the source.* The PSD program is intended to prevent air quality degradation from all sources measured from a specific date (the minor source baseline date is December 19, 1977 in North Dakota).[70] The program would have no meaning if source emissions were calculated randomly over a period of years, because the estimates would not match the sources that are contributing to ambient concentrations in the base year. If for some reason data are unavailable to characterize emissions during the base year, alternative time periods may be used to better represent actual conditions *during the base year.* EPA does not support any deviations from the 1976-1977 base year unless data from alternative years provides a better estimate of emissions that actually occurred in the 1976-1977 time period. The only exception would be if some serious event occurred during those two years that would be extremely unlikely to recur in the future (such as strike, major industrial accident, or retooling), as discussed above.

Another concern we have related to baseline emissions estimates is the State's protocol for preparing baseline oil and gas emissions estimates. These estimates appear to be based on averaging of emissions over the brief period that the sources operate, rather than annual average emission rates. Although oil and gas sources may only operate for a period of weeks or months at

---

[67] 45 Fed. Reg. 52676, 52714 (Aug. 7, 1980) (emphasis added).

[68] Workshop Manual, *supra* note 45, at A.39. *See also,* Letter from R. Douglas Neeley, Chief, Air and Radiation Technology Branch, Air Pesticides, and Toxics Management Division, EPA Region IV, to John Ynterma, Georgia Environmental Protection Division, Air Protection Branch, "Establishing Emissions Representative of Normal Source Operation for Furnace E., Owens-Brockway Glass Container, Inc., Atlanta, Georgia" (March 2, 2000) (*available at* http://www.epa.gov/rgytgrnj/programs/artd/air/nsr/nsrmemos/yntema.pdf). Letter from David P. Howekamp, Director, Air Management Division, EPA Region IX, to Robert T. Connery, Esq., Holland and Hart, "Supplemental PSD Applicability Determination Cyprus Casa Grande Corporation Copper Mining and Processing Facilities" (November 6, 1987) (*available at* http://www.epa.gov/rgytgrnj/programs/artd/air/nsr/nsrmemos/cyprusca.pdf).

[69] 40 C.F.R. § 51.166(13), N.D. Admin. Code § 33-15-15-01(1)(d).

[70] 40 C.F.R. § 51.166(b)(14)(ii).

a time, the State's approach would give them increment expansion credit as if they were operating continuously for the entire year. With the very large number of oil and gas sources, we believe it is unrealistic to assume that they would all operate at high levels all the time.

The specific State method for calculating baseline emissions that inappropriately define normal source operation are shown below along with our comments and recommendations for correcting them:

A. The State defines not representative of normal operations by looking at <u>anticipated</u> production rates (heat input per hour of operation), rather than <u>actual</u> emission rates.

EPA does not consider the concept of *anticipated* production rates to be applicable in cases where *actual* source emissions are well documented for the 1976-1977 baseline period. Such projections might be useful in instances where base year emissions are unknown. The consideration of anticipated production rates by the State increased emissions estimates for the Royal Oak Briquetting facility from 2400 tons/year in the State's 1999 modeling study (based on actual data from the 1976-1977 period) to 9600 tons/year in the current modeling study. According to the State, the source had initiated or completed construction of two new furnaces prior to the baseline date to accommodate this increase, and therefore the State proposed a period *after* the 1976-1977 baseline period to determine emissions (1978-1979). The proposed furnaces did not affect actual emissions in the 1976-1977 period. For the reasons noted above, EPA believes that the 2400 ton/year estimate using actual 1976-1977 source data is more appropriate and consistent with the PSD regulations.

B. The State inappropriately looks at 1975-1980 window, and then selects the <u>highest</u> two year consecutive period in this time frame.

As discussed above, this approach is inconsistent with the overall regulatory requirement to determine actual emissions during the baseline period. In a number of instances the State has even gone beyond the 1975 to 1980 window in an apparent effort to justify higher baseline emissions. For example the Tioga gas plant had actual emissions data available for the years 1971, 1975, 1977, and 1979. The State opted to use 1971 and 1977 data to estimate actual emissions for the 1976-1977 period. This resulted in emissions more than double what the State used in their 1999 Calpuff modeling study. Also to characterize baseline oil and gas emissions the State is using 1988 data (see discussion below).

For Milton R Young Unit 1, the State proposes to use 1978 to 1979 data as representing normal source operation for Unit 1 because of a variation in heat input per unit operating

hour during the 1970s. There is no indication that heat input values during the 1976 to 1977 period were related to some catastrophic occurrence, thus data from 1976 - 1977 should be used to calculate baseline emissions for Unit 1.

For the Stanton facility, the State determined that 1976 - 1977 data was not representative of normal source operation and used 1978 to 1979 instead. The Department references a February 18, 1977 letter in which the company indicates difficulty in the ability to supply steam to the turbine at the capacity level for which it was designed. High sodium coal apparently caused fouling of the boiler, and the company subsequently built Unit 10 to supply additional steam. EPA does not consider this to be catastrophic occurrence, as the source is adjusting its operations to optimize efficient power production. Use of 1976 - 1977 data would better characterize emissions in the base year than the 1978 - 1979 data would.

For Leland Olds Unit 2, the State concluded that 1976 to 1977 data did not reflect normal operation because the unit was in startup mode in 1976 and had many forced outages. For this reason the State used the higher emissions period of 1977 to 1978 instead. EPA would need to see more documentation to determine whether the conditions in 1976 reflected a catastrophic occurrence. The State's modeling report references a May 26, 1976 letter from the company that may be useful. EPA requests a copy of this letter for review.

C. The State inappropriately takes into account <u>any production increases anticipated</u> at the time of the baseline date.

The State's approach includes any production increases <u>anticipated</u> at the time of the baseline date. The State appears to reference preamble language from EPA's 1980 PSD Preamble.[71] EPA believes the State is taking the language from the preamble out of context. Under EPA's 1978 policy, included in the baseline as actual emissions were any future increases in hours of operation or capacity utilization, if the source could have been reasonably expected to make the increase after the baseline date.[72] In 1980, EPA *reversed* this earlier approach and stated that

> Unlike the June 1978 policy, baseline concentration will no longer routinely include those emission increases after the baseline date from sources contributing to the baseline concentration, which are due to increased hours of operation or

[71] "[I]nclude those emission increases after the baseline date from sources contributing to the baseline concentration, which are due to increased hours of operation or capacity utilization." 45 Fed. Reg. 52676, 52714 (Aug. 7, 1980).
[72] 43 Fed. Reg. 26380, 26400 (June 19, 1978).

> capacity utilization. Existing policy permitted this grandfathering, provided such increases were allowed under the SIP and reasonably anticipated to occur as of the baseline date. Today's policy which normally excludes such increase is consistent with using actual emissions to calculate baseline concentrations.[73]

As discussed in section VI., the State could use production increases if the facility suffered some kind of catastrophic event . The State has not made such a demonstration for the data used.

D. The State inappropriately takes into account any changes in fuels or raw materials anticipated at the time of the baseline date (e.g., sulfur content).

Same comment as in C., above.

E. The State inappropriately uses a weighted average of sulfur content over the life of the mine used at the time of the baseline date.

The State uses a weighted average of sulfur content over the life of each mine used by each of the sources at the time of baseline date. Again, this approach is not consistent with the requirement to determine actual emissions during the baseline period. The approach also seems to conflict with the State's proposed method to look at emissions within the 1975 to 1980 window. As shown in Table 2, mine average sulfur content levels are higher than the measured 1976 and 1977 values for Heskett, Leland Olds, Stanton and Milton R. Young power plants. Use of life-of-the-mine average coal sulfur values would increase base year emissions by approximately 11,000 tons. EPA believes that use of the actual 1976 and 1977 sulfur data should be used in determining base year emissions for these facilities.

Another aspect of the State's baseline inventory method is the use of AP-42 emission factors to determine power plant emissions unless specific sodium ash data (Na2O) are available. An alternative emission factor may be used if adequate sodium ash data are available. In the Baseline Emission Rate report the State references two letters that provide additional information on the sodium content for two facilities.[74] EPA requests a copy of these letters to determine whether the alternative factors are appropriate. It does not appear that the State has used the alternative emission factors in the April 2002 modeling study.

---

[73] 45 Fed. Reg. 52676, 52714 (Aug. 7, 1980).

[74] North Dakota Department of Health, Draft Prevention of Significant Deterioration - Sulfur Dioxide - Baseline Emission Rates, at 23 (April, 2002) (*available at* http://www.health.state.nd.us/psd/).

F. Oil and Gas Emissions Estimate

EPA provided written comments to the State on April 3, 2002 in response to a protocol describing how the State was preparing baseline oil and gas emissions estimates.[75] It appears that the same inventory approach addressed in our previous comments was used in the State's April 2000 modeling study. One major concern with the protocol was that the estimates were based on the average of peak short term emission rates, rather than annual average emission rates. This is a problem in estimating emissions from oil and gas sources because the sources may only operate for a period of weeks or months at a time, but under the State's approach they would get increment expansion credit as if they were operating continuously for the entire year. With the very large number of such sources, we believe that it is unrealistic to assume that they would all operate at peak levels all the time. This concern was highlighted by the fact that a 1983 State study of oil and gas emissions for 1981 and 1982 showed much lower emissions than the current estimates.[76] Based on trends in SO_2 monitoring data and oil production data SO_2 emissions should have been even lower in 1976 - 1977.

In reviewing the discussion in the PSD Baseline Emission Rates document, the text indicates that the Williston Basin Study (WBS) was used to calculate oil and gas SO_2 emission rates from November 1987 to March 1988 and that these data were used directly to estimate 1976 to 1977 emissions.[77] The only major adjustments were that the WBS emissions were only applied to wells actually in operation in 1977, and in instances where 1987 - 1988 data were unavailable, field average values from the WBS were used. EPA is concerned that direct use of WBS 1987 to 1988 data will overestimate base year emissions and the amount of increment expansion credit. The concern can be seen by referring to the Billings County monthly oil production data in Figure 2, and the Statewide oil production data shown in Figure 6. In both cases the volume of oil produced in 1988 is nearly double that produced in 1976 - 1977. We recommend that the State develop a simple scaling factor based on oil and gas production totals that would account for the lower production levels that occurred in 1976 - 1977. Gas production should also be accounted for in developing the scaling factor. In the event that some of the gas production data are unreliable, we suggest that the State develop an area average correlation factor between total oil and gas production using the WBS data.

---

[75] Letter from Richard R. Long, Director, Air and Radiation Program, EPA Region VIII, to Terry O'Clair, Director, Division of Air Quality, State of North Dakota Department of Health (April 3, 2002) (on file at EPA Region VIII, Denver, Colorado).

[76] North Dakota State Department of Health, Division of Environmental Waste Management and Research, Division of Environmental Engineering, Final Report - Sulfur Dioxide Emissions Inventory for Sources Near the Theodore Roosevelt National Park, Prepared for National Park Service (February 1983) (on file at EPA Region VIII, Denver, Colorado).

[77] *Id at 81.*

The issue of temporary emissions sources are also a concern. Some oil field sources, such as flares may only operate for a total of three or four months. EPA believes the State has not demonstrated the legal authority to include temporary emissions of this nature as increment expansion sources.

VII. HOW ARE THE CLASS 1 SO_2 INCREMENTS APPLIED TO THE FORT PECK INDIAN RESERVATION? (Scope of Hearing #6)

The State is proposing to not apply Class I SO_2 increments to the Ft. Peck Indian Reservation in Montana because the State issued PSD and construction permits prior to EPA's approval of the Tribe's redesignation to Class I on February 8, 1984. We are reviewing the State's interpretation and will be consulting with the Tribe on this matter. Once those steps are completed we will provide our comments on the State's interpretation.

VIII. EPA DISAGREES WITH THE STATE'S SUGGESTION THAT ELKHORN RANCH MAY NOT BE PART OF THE THEODORE ROOSEVELT NATIONAL PARK

Congress established mandatory Federal Class I areas in section 162 of the Clean Air Act Amendments of 1977 (42 U.S.C. § 7472). Section 162(a)(4) of the Act designates as Class I all international parks, national wilderness areas which exceed 5,000 acres in size, national memorial parks which exceed 5,000 acres in size, and national parks which exceed six thousand acres in size and which were in existence on August 7, 1977. On April 25, 1947, President Truman signed Pub. L. No. 80-38, creating Theodore Roosevelt National Memorial Park.[78] This included the South Unit and Elkhorn Ranch. Elkhorn Ranch was designated in section 4 of the 1947 Public Law.[79] The North Unit was added to the Memorial Park in 1948. Therefore, when the Clean Air Act was amended in 1977, all three units of Theodore Roosevelt National Memorial Park were covered by section 162 (42 U.S.C. § 7472).

The State suggests in their document "Legal Issues Relating to PSD Baseline and Increment Consumption" that since one of the units of the park, Elkhorn Ranch, is "much smaller than 6,000 acres" it does "not necessarily meet the definition."[70] The State

---

[78] An Act Establishing Theodore Roosevelt Memorial Park of 1947, Pub. L. No. 80-38.

[79] "The Secretary of the Interior is further authorized to obtain by purchase or condemnation proceedings, as part of said Theodore Roosevelt National Memorial Park, lots 2, 3, 4, and 6 of section 33, township 144, range 102, and to reconstruct thereon the long ranch house thirty by sixty feet. . . ." Pub. L No. 80-38 § 4 (1947).

[70] Witham Draft Memorandum, *supra* 18, at 144.

appears to provide this interpretation because they could not find anything that addresses whether Elkhorn Ranch is part of the National Park.[71] According to the State's own regulations, however, the Theodore National Park Class I area includes the Elkhorn Ranch Site.[72] Moreover, the State's comments note that when the first increment consuming sources were permitted in North Dakota, the Elkhorn Ranch was "inadvertently omitted" and not included in the required source impact analysis.[73] The State adds that "out of fairness" to the sources which had been granted authority to construct without undertaking the required modeling of Elkhorn Ranch, a provision was added to North Dakota's PSD program. This provision specifies that "[t]he class I increment limitations of the Theodore Roosevelt Elkhorn Ranch Site of the Theodore Roosevelt National Park shall apply to sources or modifications for which complete [PSD] applications were filed after July 1, 1982."[74] Thus, the State clearly considered Elkhorn Ranch to be a part of the Theodore Roosevelt National Park at the time it revised its PSD regulations. The State's suggestion now that Elkhorn Ranch is not a part of the Theodore Roosevelt National Park system is without basis. EPA believes that all three units of Theodore Roosevelt National Park comprise one mandatory Federal Class I area and that all three units should be included in the State's increment modeling analysis.

The State's final conclusion that sources "for which complete PSD applications were filed prior to July 1, 1982 should not be counted as consuming Class I increment at the Elkhorn ranch site,"[75] is also contradicted by its own PSD regulations. Although North Dakota revised its regulations in the early 1980s "out of fairness" to address possible PSD violations of sources that had constructed without undertaking the required modeling of Elkhorn Ranch, the same regulatory provision clarified that the impact of emissions from sources "for which permits under this chapter have been issued . . . will be counted against the increments after July 1, 1982." Thus, the regulations ensure that in analyzing increment consumption, emissions from sources which did not include Elkhorn Ranch in their required source impact analysis – but which did nonetheless receive a PSD permit from the State – will be counted against the increment after July 1, 1982 modeling analysis.[76]

IX. COMMENTS ON STATE'S MAY 6-8, 2002 PUBLIC HEARING

---

[71] *See id.*; *but see* 54 Fed. Reg. 41094 (Oct. 5, 1989)(approving a revision to North Dakota's implementation plan and identifying the Elkhorn Ranch Unit of the Theodore Roosevelt National Park as a Class I area where visibility is an important value).
[72] ND Admin. Code § 33-15-15-01(2)(c).
[73] *See id.*
[74] *Id.* (emphasis added), citing ND Admin. Code § 33-15-15-01(2)(f).
[75] *Id. at 145.*
[76] *See, e.g.,* 40 C.F.R. § 81.423.

EPA personnel attended the public hearing held in Bismarck between May 6 and May 8, 2002. While at the time of this writing we have not been able to complete a thorough review of the extensive written and verbal testimony provided at the hearing, we are able to provide comments on some of the testimony regarding the EPA January 2002 modeling study.

A. Suggestion to Use Only One Year of Meteorological Data, Rather Than the Five Years Outlined in the Modeling Guidelines

Several of the participants at the hearing recommended that EPA should abandon use of the 1990 to 1994 meteorological data base used in both the EPA January 2002 study and the State's April 2002 modeling study in favor of 2000 data. This was supported by noting that there were 32 surface meteorological stations available in 2000 compared with only 25 in the 1990 to 1994 period. Further, prognostic meteorological modeling using the MM-5[77] model would allegedly provide more reliable results.

EPA does not agree that the use of 2000 meteorological data would necessarily provide more reliable results than earlier data. Use of a single year of meteorological data would not satisfy the requirement to use five consecutive years of data in regulatory modeling.[78] One year of data (i.e. 2000) is not sufficient to characterize worst case meteorological conditions. Furthermore, EPA believes that data from the 1990 to 1994 are more complete than 2000 data because after 1995 many of the surface stations used in our modeling were converted to automated reporting systems. In the automated systems, cloud information is not reported above 12,000 feet. Use of the more comprehensive 1990 to 1994 surface data may enhance model performance. There is no evidence that use of the MM-5 prognostic meteorological model will provide improved model performance over the five year time frame necessary for regulatory modeling. Given the relatively flat terrain in North Dakota and large number of surface, upper air and precipitation reporting stations in 1990 to 1994, Calmet's MM-5 characterization of the meteorological conditions appears adequate for regulatory purposes, and is superior to the data sets used in most regulatory Calpuff/Calmet applications. North Dakota's testing of the model performance showed that Calmet is performing adequately without the use of MM-5.

B. Technical Concerns Expressed Regarding Applicability of Calpuff and State's Evaluation Study of the Calpuff Model.

Several consultants also suggested that Calpuff over predicts concentrations at distances

---

[77] A discussion of the MM-5 model is available at http://www.epa.gov/scram001/tt26.htm#calpuff.

[78] 40 C.F.R. pt. 51, Appendix W § 9.3.1.2

beyond 200 km and "according to EPA's own guidance" cannot be used for distances beyond 200 km. This would prevent application of the model to receptors more than 200 km from major emissions sources such as Ft. Peck.

In the proposed revisions to EPA's Modeling Guideline, EPA notes that based on a review of a number of case studies "the Calpuff dispersion model had performed in a reasonable manner, and had no apparent bias toward over or under prediction, so long as the transport distance was limited to less than 300 km."[79] At distances beyond 300 km EPA acknowledges that field studies suggest that Calpuff tends to over predict surface concentrations by a factor of three to four. These over predictions may be mitigated by the use of the puff splitting option in Calpuff which was deployed in EPA's January 2002 study. The IWAQM recommendations for modeling long range transport state that "[u]se of Calpuff for characterizing transport beyond 200 to 300 km should be done cautiously with an awareness of the likely problems involved."[80] EPA's January 2002 study did not model source receptor distances of greater than 300 km, and the puff splitting option was deployed to mitigate any possible over predictions. Based on this EPA believes that using Calpuff to model receptors at Ft. Peck and other receptors less than 300 km from the major emissions sources is appropriate.

Another commentor said that the State's limited Calpuff model evaluation study was flawed in that it did not consider background concentrations. A background concentration of 4 ug/m3 was suggested. The commentor included a 4 ug/m3 background level in reevaluating the State's April 2002 study and in testing the commentors own Calpuff modeling analysis. The effect of adding the additional background concentrations was to degrade the performance statistics of the State's April 2002 Calpuff evaluation study. EPA has reviewed the procedure the State used and does not believe that adding additional background concentrations would be appropriate. The State modeled all significant SO_2 emission sources within 250 km of the two monitoring sites used in the evaluation. This included major sources in Canada and oil and gas sources within 50 km of Theodore Roosevelt National Park. Since all contributing SO_2 emissions sources that could affect concentrations at the monitors were included in the modeling, EPA believes that any additional SO_2 from sources beyond 250 km would be negligible. If background concentrations from sources beyond 250 km are really as high as the 4 ug/m3 level suggested by the commentor, emissions from these sources should also be included in the increment consumption modeling as well, since 4 ug/m3 is 80 percent of the 24 hour PSD Class I increment, and some of these "background" sources in the United States may be increment consuming.

---

[79] 65 Fed. Reg. 21506, 21521 (April 21, 2000).
[80] IWAQM Report, *supra* note 4, at 18 .

C. The State and EPA Agree Calpuff is the Appropriate Model to Use, Others Express Concerns

EPA and the State believe Calpuff is *the* model to use in this instance, a long range transport situation where the Class I areas that may be threatened are more than 50 kilometers from emissions sources. However, since several parties to the State's proceeding suggest otherwise, EPA provides the following comments. Appendix W does not provide a preferred model or a "guideline model" for use in modeling long range transport situations. However, Appendix W provides that models selected for use in long range transport situations should be determined in consultation with the EPA Regional Office and the appropriate Federal Land Manager.[81] Consistent with this provision, EPA and the FLMs formed a workgroup, the Interagency Workgroup on Air Quality Modeling (IWAQM), to provide detailed recommendations for modeling long range transport impacts. The IWAQM issued a report in 1998 that recommends Calpuff for long range transport modeling.[82] Therefore, EPA believes Calpuff is the appropriate model to be used to address the current North Dakota PSD Class I increment issue.

D. Concerns that Calpuff Model Has Been Inadequately Evaluated

At the State's hearing on this matter, one of the parties suggested Calpuff should be validated before it can be used by the State. EPA disagrees with this suggestion for the following reasons. Calpuff has been tested and evaluated nationally. The results of the studies are available to the public on EPA's internet website.[83] There is no legal requirement to test Calpuff in a particular application before it is used a regulatory context as long as the model is used in applications for which it has been designed (i.e., for distances of less than 300 kilometers). Over the past five years, Calpuff has been used in hundreds of permit applications and Environmental Impact Statement analyses. The State tested the performance of Calpuff using data from both the Dunn Center monitor and another monitoring site at the South Unit.[84] The test showed that the model was reliable based on EPA's model evaluation procedures.[85]

E. Concerns Regarding the Accuracy of CEMS Data

A commentor stated that continuous emissions monitoring system (CEMS) data from

---

[81] 40 C.F.R. pt. 51 Appendix W § 7.2.6 (a). *See also,* 40 C.F.R. pt. 51 Appendix W §§ 3.2.2(a), 3.0.
[82] IWAQM Report, *supra* note 4, at 6.
[83] *See,* http://www.epa.gov/scram001/tt26.htm#calpuff.
[84] North Dakota Department of Health, Draft Report Evaluation of the Calpuff Model Performance Using Year 2000 Data (November, 2001).
[85] 40 C.F.R. pt. 51 Appendix W § 10.1.4.

EPA's acid rain data base are biased high, and are higher than emissions calculated based on AP-42 emission factors. Because in EPA's January 2002 modeling study CEMs data were used to determine current emissions, and AP-42 factors were used in the baseline years, the commentor felt that increment consuming emissions were overestimated in EPA's study. EPA responded to a similar point raised by the State in a February 27, 2002 letter to EPA.[86] In EPA's March 15, 2002 to the State we explained the reasons for our determination that EPA considers the CEMs data to be the best data available for use in increment analysis and we have seen no evidence from industry that would support the contention of a CEMs bias for the sources included in this analysis.[87] The perceived difference in the two methods may be related to problems in the AP-42 data rather than CEMs bias.[88] In accordance with the Acid Rain Program regulations, the quality assured CEMS data are certified by the company's Designated Representative, and in the absence of any approved source petition EPA considers these quality assured data to be accurate.[89]

Sincerely,

Richard R. Long, Director
Air and Radiation Program

[86] Letter from Terry L. O'Clair, Director, Division of Air Quality, North Dakota Department of Health, to Richard R. Long, Director, Air and Radiation Program, EPA Region VIII (February 27, 2002) (on file with EPA Region VIII, Denver, Colorado).
[87] Letter from Richard Long, Director, Air and Radiation Program EPA Region VIII, to Terry O'Clair, Director, Division of Air Quality, North Dakota Department of Health (March 15, 2002) (on file with EPA Region VIII, Denver, Colorado).
[88] United States Environmental Protection Agency, Office of Air Quality Planning and Standards, Compilation of Air Pollutant Emission Factors AP-42, Fifth Edition,, Volume I: Stationary, Point and Area Sources, Pub. No. AP-42 (*available at* http://www.epa.gov/ttn/chief/ap42/).
[89] 40 C.F.R. Part 75.

Glossary[90]

Air quality includes the ambient pollutant concentrations and their temporal and spatial distribution.

Air Quality Related Values (AQRV) are any resources in a Class 1 area needing protection from air pollution impacts.

Baseline concentration is the ambient concentration in the area existing at the time of the minor source baseline date (i.e. the date when the first complete PSD permit application affecting that area is submitted).

Increment consumption is the amount of increment used by sources since the baseline date, and it must be analyzed by new PSD sources and should be periodically tracked by States.

PSD increment is the maximum increase in ambient concentration that is allowable above a baseline concentration in a designated area. Exceedance of the increment is significant deterioration which the PSD program is supposed to prevent.

Significant deterioration is said to occur when the amount of new pollution exceeds the applicable PSD increment or Class I AQRV impacts occur.

[90] The Glossary is provided to assist readers unfamiliar with these terms.

Table 2. Baseline Power Plant Annual Average Emissions Comparison

Source	ND Emissions (tons/yr)	Basis for ND Calculation	EPA Emissions (tons/yr)	Basis for EPA Calculation
Heskett Unit 1	1982	1976-1977 mine avg. S = 0.8%	1768	1976-1977 '76-'77 avg. S = 0.72%
Heskett Unit 2	4743	1976-1977 mine avg. S = 0.8%	4186	1976-1977 '76-'77 avg. S = 0.72%
Leland Olds Unit 1	12,494	1976-1977 mine avg. S = 0.65% (until 1993)	8551	1976-1977 '76-'77 avg. S = 0.45%
Leland Olds Unit 2	21,449	1977-1978 mine avg. S = 0.65% (until 1993)	13,094	1976-1977 '76-'77 avg. S = 0.45%
Stanton Unit 1	6754	1978-1979 mine avg. S = 0.69% (until 1992)	7176	1976-1977 '76-'77 avg S = 0.65%
MRY Unit 1	17,004	1978-1979 mine avg. S = 0.77%	13,383	1976-1977 '76-'77 avg. S = 0.58%
MRY Unit 2	19,175	1979-1980 mine avg. S = 0.80% 1.2 lb/mmBTU limit avg heat input	24,682	allowable limit
TOTAL	83,601		72,840	